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Development of gerontology and geriatrics
in MongoliaSengee Enkhmandal Ulaanbaatar Songdo Hospital,
5 Choidog St., Ulaanbaatar, 14210, MongoliaCorresponding author: Sengee Enkhmandal (mandaa0330@yahoo.com)**Abstract**

Background: The population of Mongolia in 2020 is estimated at 3,305,625 thousand people, thus it has increased by 25.3% since 2000, by about 5.6% per year. The number of older people in Mongolia in 2015 was 244162, and that number will grow up to 535761 in 2030. The history of development and establishment of the National Gerontology Center (NGC) of Mongolia has taken a long road since 1966. Nowadays, there is one NGC in the capital, Ulaanbaatar, which provides scientific and practical guidance for conducting preventive examinations and treatment of the elderly. On June 2020, a new Gerontology Center opened in Darkhan city of Mongolia. **The aim of the study:** To introduce the statistical data of the elderly people and history of development of NGC in Mongolia. **Materials and methods:** Statistical data was mostly introduced from the renewed population projection for 2015-2045 designed by the National Statistical Office of Mongolia. The history of the NGC of Mongolia was collected from the newspapers and journals of the library, the archive of the Gerontology Center and electronic database from the web of the Ministry of Health. **Results:** Performance results of the NGC: within the period from 2005 to 2015, 61,262 people received outpatient examinations, 25,453 received preventive examinations, 3,500 received follow-up and home care, and 515,534 people received geriatric diagnostics and treatment. By 2019, the Center received the national independent status for providing comprehensive care for the elderly in accordance with the current developments in the field of gerontology, providing qualified medical services and methodological guidance for healthcare institutions and specialized training of medical personnel. **Conclusion:** The modern NGC is now striving to develop an integral healthcare system for the elderly that effectively integrates healthcare for the elderly with long-term follow-up, home care and palliative care.

Keywords: elderly; history; establishment; development; healthcare

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Introduction. According to the national statistics, the population of Mongolia in 2020 is estimated at 3,305,625 thousand people, thus it has increased by 25.3% since 2000, by about 5.6% per year. According to the national statistical estimates, the population will reach 4 million people by 2031 and 5 million by 2045 [1, 2]. In Mongolia, men and women over 60 and 55 years are called elderly people. In 2015, people aged 65 and older made 3% of the total population, and by 2045 the number will triple up to 9%. It is predicted that the share of the population aged 60 and older will exceed the share of the population aged 0 to 14 years old by 2056 [1]. The percentage of elderly people above 80 in the population will also increase from 0.5% in 2007 to 1.0% by 2025 and 3.4% by 2050 [3]. According to scientists, the number of older people in Mongolia in 2015 were 244162, and that number will double by 2.2 to become up to 535761 in 2030. This figure indicates that by 2030 the elderly will make up 14.9 percent of the total population of Mongolia [4-7].

The aim of the study. To introduce the statistical data of the older people and history of development of the National Gerontology Center in Mongolia.

Materials and methods. Statistical data were mostly introduced from the renewed population projection for 2015-2045 designed by the National Statistical Office of Mongolia. The history of the NGC of Mongolia was collected from the newspapers and journals of the library, the archive of the Gerontology Center and electronic database from the web of the Ministry of Health.

Results. Almost three quarters of Mongolia's population live in or around large cities, most of which are concentrated in one area. Approximately 45% of the country's population live in the capital, Ulaanbaatar, which had the population of 1.5 million as of 2019 [6-8]. 68.3% of the total population of elderly people live in urban areas, and 31.6% live in rural areas. Ulaanbaatar is home to

1,440,400 people, or 46.2% of the total population [7-9].

The population of Mongolia is now young, but by 2045 the age structure will approach aging. Life expectancy of the population of Mongolia in 2016 was 69.57 years, 65.58 years for men and 75.10 years for women. The average life expectancy of women is 9.52 years longer than that of men. In general, women constitute the majority of the older population (58% female vs. 42% male), and even more of the population of oldest olds (61% vs. 31%). A higher proportion of older women than older men are "single," that is, unmarried (3.2% vs. 2.8%) or widowed (62.7% vs. 24.4%). Moreover, older women face a higher incidence of disability (53% vs. 47%), fewer opportunities for productive employment (4.8% vs. 13.1%), and a higher prevalence of difficulties with ADL (57% vs. 43%) and IADL (55% vs. 45%). As older women tend to be less secure in terms of finances, care, and support, they are more vulnerable than older men [10].

Life expectancy is critical for determining mortality rates in population projections. Therefore, with development of modern medicine, it is also assumed that the availability and quality of medical services will increase, infant mortality will decrease, and life expectancy will gradually increase by about 0.5-1.5 years every 5 years by 2045 [8].

In 2005, average years in retirement for male were 13.3 years, average years in retirement for female were 15.3 years, but in 2030 and onwards average years in retirement for male are expected to be 15.4 years, and average years in retirement for female – 17.1 years [11]. Thus, according to estimates, in 30 years, 16% of the population of our country will reach retirement age, i.e. the number of the population in retirement age will triple by 2045, indicating the need for policy measures such as regulating the rate of retirement payments and increasing social security services for retired people [8]. During the "demo-

graphic window", the government of Mongolia is actively taking measures to accelerate the country's economic development, increase jobs, increase incomes, life quality and life expectancy of the population.

History of Gerontology Development

The Mongolian gerontology dates back to 1966, the Director of the Academy of Sciences B. Shirendev and the Minister of Health G. Tuvaan, at a meeting with Professor Par-khong (Romania) from the Institute of Gerontology, signed the first foreign agreement on the training of doctors in gerontology. The first geriatric doctor was Ts. Gonchigsuren. In 1973, the second geriatric doctor N. Zhanchiv from Ulaanbaatar was trained at the Kiev Institute of Gerontology for 6 months.

Formation of first Geriatric outpatient cabinet: After N. Zhanchiv graduated from the institute, he proposed to create a center for the elderly in his country with Ts. Gonchigsuren and the first outpatient cabinet for the elderly was established in 1977 [8-10]. By the Order of the Executive Director and Head of the Health Protection Department of Ulaanbaatar People's Deputies Congress, "Monitoring for the Elderly" No. 60 dated January 15, 1977, "Hospital Rooms for the Elderly" were arranged in Mongolia in the 3rd General Hospital of Ulaanbaatar, where Ts. Gonchigsuren worked as a doctor. From 1983 to 1987, the outpatient Center for the Elderly was expanded, in which, in addition to the general physician D. Chultem, a neurologist, a primary care physician, a rehabilitation therapist, an otolaryngologist and a radiologist started working [12, 13].

Establishment of geriatric cabinets in districts: By the Order of the Executive Director and Head of the Health Protection Department of Ulaanbaatar People's Deputies Congress dated December 20, 1988, No. 115 "On Measures Regarding the Work of Hospitals for the Elderly", the procedure for the operation of the first geriatric office in polyclinics in two districts – Sukhbatar and Oktyabrsky – was approved. The staff of the geriatric office consisted of 2 doctors and 2 nurses. Later the geriatric cabinet expanded and

became a Geriatric Clinic located in Dambadarjaa [9].

Geriatric Clinic united with Traumatology Clinic: By the decision of the Government of Mongolia, the Geriatric Clinic united with the Traumatology Clinic in 1992. After this decision, the health of the elderly was largely neglected. *Rehabilitation Center:* By the Order of the Minister of Health dated January 26, 1995 A/09, the Ulaanbaatar Rehabilitation Hospital was transformed into a Rehabilitation Center, and not only for the elderly, but also for other categories of the population [9]. From that moment on, the number of elderly patients in the Rehabilitation Center began to decline sharply.

The Gerontology and Rehabilitation Center: By the Order of the Minister of Health dated October 3, 1995, A/132 and A/209, the Rehabilitation Center was united with the Traumatology Clinic [10]. Within the framework of the National Program "Health and Social Protection of the Elderly", approved by Government Decree No.130 of 1998, the Gerontology and Rehabilitation Center was opened. 2 doctors and 1 nurse worked in the Gerontology and Rehabilitation Center. The Gerontology and Rehabilitation Center was responsible not only for counseling the elderly throughout the country, but also for training medical personnel in caring for the elderly [13].

Establishment of geriatric cabinets in provinces for the first time: By the Order of the Minister of Health dated January 31, 1999, in all provinces, for the first time, offices for retired people were created, in which the elderly were trained in primary and secondary prevention of morbidity, medical and social issues.

In 2003, R. Oyunkhand became director of the Gerontology and Rehabilitation Center and started to organize research studies towards health and pathologic conditions of the elderly and geriatric health education trainings. In 2003, preparation of professional doctors in gerontology-geriatrics began at a new stage as Ya. Tsend and R. Oyunkhand began training in geriatrics in Malta, organized by the International Institute of Aging. Since

2003, under the leadership of the Gerontology and Rehabilitation Center in the provinces, geriatricians have been working to carry out preventive examinations of the elderly. Since 2003, a team of geriatric physicians began working with family doctors, as well as government and nongovernmental organizations working with the elderly, to provide preventive check-ups, health education and training of elderly people on healthy lifestyles and physical activity. The preparation-educating program of geriatric doctors and nurses in Mongolia started in 2005 by the organization aid of the Postgraduate Institute of Mongolian Health Sciences University with the support of the World Health Organization. Two physicians have been trained as “Geriatric Physicians” and three have been trained as “Geriatric Nurses”, doctors and nurses first trained in first aid treatment [13].

In 2005-2006, the head of the Gerontology and Rehabilitation Center, R. Oyunhand, was trained as the first clinical gerontologist at the Joint Medical Postgraduate Institute in Singapore and became the first trained gerontologist in Mongolia. In 2007, head of the Center R. Oyunkhand initiated and established the “Association of Gerontology and Geriatrics”, which included specialized members in gerontology [13]. By the Order of the Minister of Health of December 14, 2007 No.311 "On Measures for the Care of the Elderly", guidance rules for the operation of a geriatric office structure and personnel schedule in district and province hospitals were approved [14].

Establishment of the Gerontology Center: Until 2005, the Gerontology and Rehabilitation Center and geriatric doctors arranged medical care for the elderly on their premises, but the lack of methodological support for arranging care of the elderly lead to the establishment of the Gerontology Center under the Ministry of Health of Mongolia. The head of the Gerontology and Rehabilitation Center R. Oyunkhand initiated a project to create a gerontology center and submitted it to the Ministry of Health, which supported the decision to establish a gerontology center. By the Decree of the Government of Mongolia

No.209 dated September 29, 2005, the functions of the National Gerontology Center under the Ministry of Health of Mongolia include conducting researches, training healthcare institutions of various levels with professional methodological guidelines for studying the causes and factors of aging of the Mongolian population and providing medical care [14, 15].

On the basis of the Order of the Minister of Health of November 11, 2005 No.279, “The Strategy and Structure of the Activities of the Gerontology Center” was approved, 18 stationary places were organized. At the same time, the original emblem of the Gerontology Center and the internal work order regulations were approved. The Gerontology Center started to work in four main areas: strategic division, educational division, research division, the department of information marketing and financial services of rehabilitation care. One of the functions of the Center was activities in the field of training medical personnel [16].

In 2007, at the initiative of R. Oyunkhand, director of the Tenthleg Center a multi-specialty team providing home care for the elderly, introduced a new form of care for the elderly and began to provide the elderly with the necessary medical and social services. The multi-specialty team is dedicated to providing comprehensive home care for the critically ill and disabled, addressing social issues and improving the satisfaction and quality of life of elder people across the country.

Since the foundation of the Gerontology Center as an independent organization, 2 specialists worked in the training department for promotion of healthy aging and 1 specialist worked in the research field. In 2006, the Department of Training and Research, Foreign Relations and Cooperation including 6 specialists was added to the structure of the Center. The department conducts trainings and education on gerontology and geriatrics, studies the factors influencing the aging of the Mongolian people and the health of the elderly; supports and evaluates researches; promotes healthy aging; arranges and directs multiple activities across the country, includ-

ing the collection of health data and information on elder people; cooperates with foreign and domestic organizations performing similar activities. Every year the department expands cooperation and the scope of its activities [10].

The educating program "The Fundamentals of Gerontology and Geriatrics" was developed and approved by the head of the Center R. Oyunkhand and the head of the educational department M. Solongo in 2007. 1251 doctors took part in the training, organized in 2007-2011 in 9 districts of the capital and 21 rural provinces. This is a major breakthrough in providing basic knowledge about the aging process and the conditions accompanying aging to physicians of primary healthcare centers [17]. In 2009, with the support of the United Nations Population Fund (UNFPA), offices were renovated and training of coaches on "Breathing Exercises" and "Water and Breathing" meditation started for the elderly. Since 2010, preventive examinations have been carried out among the elderly in remote areas of the capital and among the elderly in rural areas. The Hall for Healthy Aging was opened with financial support from the United Nations Population Fund and began using instruments for comprehensive physical examination, electronic weight and bone density measurement [12, 13].

In 2012, "The nursing guidance for the elderly" was approved by the Ministry of Health on 13 January, 2012. The rationale is that health care providers should not only focus on the illness of the elderly, but also conduct a comprehensive physical, mental and social assessment, develop and implement a care plan tailored to the needs of the elderly, evaluate the results for the prevention, long-term preservation of the independence of the elderly and the promotion of healthy aging [18].

The National Program named "Healthy Ageing, Health of Elders" was approved by the Mongolian Government in December 14, 2013. The purpose of the program was to improve the quality of life of the elderly by supporting a healthy and active aging population, improving the health, care, protection and so-

cial participation of the elderly. These include 1. Creating a favorable legal, social and economic environment to support a healthy aging population; 2. Promoting the health of the elderly and preventing disease; 3. Improving the development, protection and participation of the elderly in society; 4. Expanding comprehensive health care services to meet the needs of the elderly [19].

The Gerontology Center expanded to the National Gerontology Center: The functional direction and structure of the Center's activities were approved in 2012 by Government Decree No.231 "The National Gerontology Center" and by the Order of the Minister of Health No.226 dated June 25, 2013 [15]. The National Gerontology Center is currently the leading national health organization for gerontology and geriatrics. The General Directors of the National Gerontology Center were: R. Oyunhand (2006-2013), N. Nyamsuren (2015-2016), B. Bayar (until December 2016), R. Khishigzhargal (from December 2016 to the present).

Since its establishment, the National Center for Gerontology has carried out its mission studying the factors affecting the aging and health of the elderly in Mongolia, providing disease prevention, diagnostics, rehabilitation, treatment and nursing services, providing professional management and methodology to health organizations, training and advocacy.

The National Gerontology Center has four divisions: the health services division, the academic research division, the strategic planning division, and the internal audit service for quality control and assessment. Since 2005, the Center has been located in the building of the former anti-tuberculosis dispensary. Despite the fact that there are 52 positions in the Center, there are currently 9 doctors and 3 nurses in the Center.

Gerontology-geriatrics current condition

The National Gerontology Center – Mission: To study the aging process and the risk factors, to develop the workers by creating a system that respects clients by providing social, health and medical care to the elderly.

The NGC is an organization under the Ministry of Health of Mongolia. According to the rules of the NGC, the organization is responsible for studying the causes of aging and health factors in Mongolia, providing professional and methodological guidance to health care providers in providing public rehabilitation services for the elderly, and conducting training and research [20].

Scope of activities – The NGC under the Ministry of Health studies the factors affecting the aging and health of the elderly in 9 districts, 21 provinces and the country, provides services for disease prevention, diagnostics, rehabilitation and treatment that is a national reference center that provides training and advocacy to the elderly free of charge, regardless of home address.

The National Gerontology Center has four divisions: the health services division, the academic research division, the strategic planning division, and the internal audit service for quality control and assessment. From 2005 the Center has been located in the building of the former anti-tuberculosis dispensary. Despite the fact that there are 52 positions in the Center, there are currently 9 doctors and 3 nurses in the Center.

Performance results: In 2005-2015, 61,262 people received outpatient examinations, 25,453 patients received preventive examinations, 3,500 patients received home care and 515,534 patients received diagnostics. In 2016, a total of 21,079 examinations were performed, of which 19,077 were outpatient examinations, 1,523 were preventive examinations, and 479 were active home visits. Observing these numbers, only 8.18 percent of the elderly is provided with healthcare annually, therefore it is an important issue that needs to be addressed in order to improve the quality and availability of care (diagnostics, type of treatment, number of rooms, number of qualified doctors and specialists) [20].

Within the framework of training for geriatric doctors and nurses: Since 2007, we have been organizing specialized professional training programs for geriatric doctors and nurses. There are 24 geriatricians and 28 nurses for the elderly in Mongolia. This rep-

resents 49 percent of the total number of geriatric physicians and 28.4 percent of nurses, indicating the need to focus on policy-preparing the training of geriatricians and nurses [20].

In the framework of geriatric training: Every year, the Central Research and Training Office organizes thematic and repeated trainings for doctors, medical professionals and the elderly who provide health care services to the elderly in the capital city and rural areas. As of 2016, 1513 doctors and medical professionals participated in 16 trainings of 11 types and 2733 elderly people participated in 13 trainings of 37 types and successfully organized trainings in each field [19].

In the framework of research in geriatrics: The Academic Council of the Central Research and Training Office consists of 9 professors, 3 associate professors, 3 doctors of medicine and 1 master of social sciences who works and directs research in aging and its pathology [12].

Discussion

Health care system for the elderly:

1. Within the framework of the national program “Healthy Aging and Health of the Elderly” at the level of primary care, a training program on “Strengthening care for the elderly in Soum (subprovince) health centers” was created and approved at the primary care level. In accordance with the “Friendly Family Health Center for the Elderly” selection procedure, we are selecting and rewarding family and Soum health centers that have created a friendly environment for the elderly and set an example for other organizations [20].

2. Within the framework of improving the quality and access to specialized professional services for doctors and medical professionals working at the second level or at the level of general hospitals in province and district health centers, training and advocacy are organized in 8-10 provinces every year providing professional and methodological guidance. We are cooperating to make recommendations on the issue and pass them on to the administrative unit management at the appropriate level. Doctors in the geriatric of-

fices in the district are involved in continuous training throughout the year.

3. Thematic and repeated trainings on the diagnostics and treatment of common diseases in the elderly and communicating special methods with the elderly are organized annually in cooperation with the central hospitals and specialized centers for doctors and medical professionals working at the tertiary level or specialized centers, general clinical hospitals and centers. Professional and methodological guidance in the care for the elderly is also provided. In collaboration with central hospitals and specialized centers, we conduct research on risk factors and common diseases that affect aging and make significant contribution to the development of the sector.

The government of Mongolia decided to construct a new building of the National Gerontology Center for specialized care for the elderly in 2020. Unfortunately, because of the COVID-19 pandemic, the government budget for 2020-2021 years was changed. On June 2020, a new Gerontology Center was opened in Darkhan city, where 13,000 elder people live.

The Center has acquired the national independent status of providing comprehensive care for the elderly in accordance with the current trends in the field of gerontology, providing qualified medical services and methodological guidance for healthcare institutions. Also, the National Gerontology Center acquired the status of the National Center for Specialized Training of Medical Personnel. The modern National Gerontology Center is committed to developing an integrated system of care for the elderly that effectively integrates healthcare for the elderly with long-term follow-up, home care, and palliative care.

Conclusion. Due to the rapid increase in the number of elderly people as a result of the aging process, its necessary to improve the quality of specialized services in aging and pathology of the elderly, to establish a nationwide rehabilitation hospital and research laboratory that will enable to bring the sector development to the level of developed countries. The modern NGC is now striving

to develop an integral healthcare system for the elderly that effectively integrates healthcare for the elderly with long-term follow-up, home care and palliative care. There is an urgent need to increase the number of doctors and specialists in the field of the elderly and to continuously improve their skills. Solutions are also needed for providing care for the elderly living in rural areas, particularly those with nomadic and seminomadic lifestyles.

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Conflict of interests

The author has no conflict of interest to declare.

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